

U.S. Patent Application Serial No. 10/619,217
Reply to Office Action dated December 23, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Claims 1 and 4-10 are amended.

Listing of Claims:

1. (Currently Amended) A hub-bearing assembly for the wheel of a motor vehicle, the hub $[(1)]$ forming integrally or being securely fixed to a radial flange $[(7)]$ to be fastened to a wheel $[(8)]$, wherein, associated with the assembly is an optical measuring device $[(14)]$ mounted on a non-rotating part $[(12)]$ of the vehicle and ~~operatively~~ axially facing an essentially radial optically reflecting surface $[(13)]$ secured to or integral with the flange $[(7)]$ for detecting real time variations of the axial position of the surface $[(13)]$ due to elastic deformation of the flange $[(7)]$, the measuring device $[(14)]$ including emitter means for projecting a light radiation onto the reflecting surface $[(13)]$ and receiver means for receiving the light radiation reflected back by the reflecting surface $[(13)]$, for detecting real time variations of the axial position of the surface $[(13)]$ due to elastic deformation of the flange $[(7)]$ caused by forces transmitted from the wheel $[(8)]$ to the hub flange $[(7)]$.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The assembly of claim 1, wherein the optical measuring device $[(14)]$ includes emitter means for emitting a laser beam.

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5. (Currently Amended) The assembly of claim 1, wherein the measuring device [[[14)]] is arranged for carrying out said measuring operation in proximity of the peripheral zone of the hub flange [[[7)]]].

6. (Currently Amended) The assembly of claim 1, wherein the surface [[[13)]] is facing the inboard side of the vehicle.

7. (Currently Amended) The assembly of claim 1, wherein the measuring device [[[14)]] is fixable to a non-rotating race [[[12)]] of the bearing.

8. (Currently Amended) The assembly of claim 1, wherein the measuring device [[[14)]] is connected [[[15)]] to an electronic processing unit mounted on board of the vehicle and set for automatically controlling, based on the deformation signals received from the measuring device [[[14)]], the wearable members of the braking system for adapting their position to the position of a rotor brake [[[5)]] rigidly connected to the flange [[[7)]] of the hub [[[1)]]].

9. (Currently Amended) The assembly of claim 1, wherein the measuring device [[[14)]] is connected [[[15)]] to an electronic processing unit mounted on board of the vehicle and set for recognizing, based on the deformation signals received from the measuring device [[[14)]], a condition indicative of an impending loss of adhesion with the road.

10. (Currently Amended) The assembly of claim 1, wherein the measuring device [[[14)]] includes an inductive position sensor and that the essentially radial surface [[[13)]] is of a metallic material.